Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.(Currently amended) A fluidic device ~~(3, 9, 10),~~ for producing consecutive series of plurality of independent sample plugs, the device comprising:

a plurality of sample channels ~~(35, 91, 92, 101, 102)~~, each of said plurality of sample channels ~~(35, 90, 100)~~ having a sample fluid inlet ~~(36)~~, said plurality of sample channels ~~(35, 91, 92, 101, 102)~~ being adapted to be filled through said inlet ~~(36, 90, 100)~~ with a sample fluid to be ~~analysed~~ analyzed or treated in use of said device ~~(3)~~,

a flush fluid control means ~~(32, 93, 103)~~ positioned ~~at~~ to traverse said plurality of sample channels ~~(35)~~ downstream the location where the sample fluid is ~~analysed~~ analyzed or treated in said device ~~(3, 9, 10)~~, said flush fluid control means ~~(32, 93, 103)~~ having flush fluid inlet means ~~(33)~~ and flush fluid outlet means ~~(34)~~ in communication with each of said plurality of sample channels ~~(35)~~, and said flush fluid control means ~~(32, 93, 103)~~

being adapted to control the fluid composition ~~(47, 50)~~ in said plurality of sample channels; and

at least one individual threshold provided in each of said plurality of sample channels,

wherein the flush fluid control means is operated to simultaneously produce consecutively arranged series of independent sample plugs in each of the plurality of sample channels.

2.(Currently amended) ~~Fluidic~~ The fluidic device according to claim 1, wherein said fluid device ~~(3, 9, 10)~~ is a microfluidic device, at least partly manufactured by micromachining methods.

3.(Currently amended) ~~Fluidic~~ The fluidic device according to claim 1, wherein said flush fluid control means ~~(32)~~ controls said flush fluid content at said channel inlet ~~(36)~~ by replacing a fixed amount of said sample fluid ~~(47)~~ in said sample channels ~~(35, 91, 92, 101, 102)~~ with flush fluid ~~(50)~~ upstream of said fluid control means ~~(32, 93, 103)~~.

4.(Currently amended) ~~Fluidic~~ The fluidic device according to claim 2, wherein said control means is a cross-over channel ~~(32)~~.

5.(Currently amended) ~~Fluidic~~ The fluidic device according to claim 4, wherein the cross-over channel ~~(32)~~ divides two arrays ~~(30, 31)~~ of microchannels ~~(35)~~.

6.(Currently amended) ~~Fluidic~~ The fluidic device according to claim 1, wherein said fluid inlet and fluid outlet means of said fluid control means ~~(32)~~ are inlet ~~(33)~~ an outlet ~~(34)~~ channels.

7.(Currently amended) ~~Fluidic~~ The fluidic device according to claim 6, wherein said inlet and outlet channels comprise valve means ~~(46, 47)~~ for controlling flush fluid communication through said inlet ~~(33)~~ and fluid communication through said outlet channel ~~(34)~~.

8.(Currently amended) ~~Fluidic~~ The fluidic device according to claim 1, ~~wherein said device comprises~~ further comprising pressure regulating means ~~(46, 47)~~ for controlling flush fluid communication through said inlet ~~(33)~~, fluid communication through said outlet channel ~~(34)~~ and fluid flow through said sample channels ~~(35, 91, 92, 101, 102)~~.

9.(Currently amended) ~~Fluidic~~ The fluidic device according to claim 1, ~~comprising~~ wherein the at least one threshold ~~(39)~~ being arranged in said plurality of sample channels ~~(35)~~ upstream of said flush fluid control means ~~(32, 93, 103)~~ in the fluid flow direction of said sample fluid.

10.(Currently amended) ~~Fluidic~~ The fluidic device according to claim 9, wherein said threshold ~~(39)~~ is tuneable.

11.(Currently amended) ~~Fluidic~~ The fluidic device according to claim 9, wherein said threshold ~~(39)~~ is in each of said channels is controlled by a physical constriction, a fluidophobic or hydrophobic effect, an electric field, a temperature or light excitation.

12.(Currently amended) ~~Fluidic~~ The fluidic device according to claim 9, wherein said threshold ~~(39)~~ is controlled by a common control for all channels.

13.(Currently amended) ~~Fluidic~~ The fluidic device according to

claim 1, wherein independent sample plugs ~~(51)~~ are formed in said sample channels by said control means ~~(32)~~.

14. (Currently amended) ~~Fluidic~~ The fluidic device according to claim 1, wherein said flush fluid is a gas or an inert liquid.

15. (Currently amended) ~~Fluidic~~ The fluidic device according to claim 1, wherein said fluidic device is arranged inside a compact housing, said housing being a diagnostic cartridge.

16. (Currently amended) ~~Fluidic~~ The fluidic device according to claim 1, wherein said fluidic device is selected from at least one of a diagnostic cartridge, a microfluidic chip, a lab-on-a-chip, a micro-total-analysis system, a biochip or a biosensor.

17. (Currently amended) A method of generating independent fluid samples ~~(51)~~ in a fluidic device ~~(3, 9, 10)~~ for producing consecutive series of plurality of independent sample plugs for multichannel analysis ~~according to claim 1~~, the fluidic device comprising:

a plurality of sample channels each of said plurality of

sample channels having a sample fluid inlet, said plurality of sample channels being adapted to be filled through said inlet with a sample fluid to be analyzed or treated in said device;

a flush fluid control means positioned to traverse said plurality of sample channels downstream the location where the sample fluid is analyzed or treated in said device, said flush fluid control means having flush fluid inlet means and flush fluid outlet means in communication with each of said plurality of sample channels, and said flush fluid control means being adapted to control the fluid composition in said plurality of sample channels; and

at least one individual threshold provided in each of said plurality of sample channels, wherein the flush fluid control means is operated to simultaneously produce consecutively arranged series of independent sample plugs in each of the plurality of sample channels, said method comprising ~~the steps~~acts of flushing of a flush fluid control means ~~(32, 93, 103)~~ with flush fluid such that the consecutively arranged series of independent sample plugs are formed in ~~a multiple channels (31)~~ each of the plurality of sample channels of said device ~~(3)~~, said sample plugs being separated by said flush fluid.

18. (Currently amended) ~~A~~ The method according to claim 17, said flush fluid control means ~~(32)~~ having flush fluid inlet means ~~(33)~~ and flush fluid outlet means ~~(34)~~, said method further comprising ~~the steps~~acts of

introducing sample liquid into said device ~~(3)~~ through a sample fluid inlet into a plurality of channels,

transporting said sample liquid across said flush fluid control means ~~(32)~~ further into said channels until a threshold ~~(39)~~,

opening of said flush fluid inlet means ~~(33)~~ and flush fluid outlet means ~~(34)~~ by means of said valve means ~~(46, 47)~~,

flushing of said flush fluid control means ~~(32)~~ with a flush fluid,

transporting said sample liquid in said channels and said flush liquid in said flush fluid control means ~~(32)~~ across said flush fluid control means ~~(32)~~ further into said channels.

19. (Currently amended) ~~A~~ The method according to claim 18, wherein a plurality of consecutive independent sample fluid plugs are generated by repeating said ~~steps~~ acts of

opening of said flush fluid inlet means ~~(33)~~ and flush fluid outlet means ~~(34)~~ by means of said valve means ~~(46, 47)~~,

flushing of said flush fluid control means ~~(32)~~ with a flush fluid,

transporting said sample liquid in said channels and said flush liquid in said flush fluid control means ~~(32)~~ across said flush fluid control means ~~(32)~~ further into said channels.

20. (Currently amended) ~~A~~ The method according to claim 18, wherein after the step of flushing said flush fluid control means ~~(32)~~ with a flush fluid,

said flush-fluid inlet means ~~(33)~~ and flush-fluid outlet means ~~(34)~~ are re-closed by means of valve means ~~(46, 47)~~, or

said flush fluid is put under pressure for transporting said sample fluid into said channels.

21. (Currently amended) ~~A~~ The method according to claim 17, wherein said multichannel analysis is performed in a diagnostic cartridge, a microfluidic chip, a lab-on-a-chip, a micro-total-analysis system, a biochip or a biosensor.

22. (Currently amended) ~~A~~ The method according to claim 17, wherein said multichannel analysis is performed by a microfluidic device.

23. (Currently amended) A computer-readable medium ~~(8)~~ having embodied thereon a computer program for processing by a computer ~~(80)~~ for generating consecutive series of independent fluid samples ~~(51)~~ in a fluidic device ~~(3)~~ for multichannel analysis ~~according to claim 1~~, the fluidic device comprising:

a plurality of sample channels each of said plurality of sample channels having a sample fluid inlet, said plurality of sample channels being adapted to be filled through said inlet with a sample fluid to be analyzed or treated in said device;

a flush fluid control means positioned to traverse said plurality of sample channels downstream the location where the sample fluid is analyzed or treated in said device, said flush fluid control means having flush fluid inlet means and flush fluid outlet means in communication with each of said plurality of sample channels, and said flush fluid control means being adapted to control the fluid composition in said plurality of sample channels; and

at least one individual threshold provided in each of said

plurality of sample channels, wherein the flush fluid control means is operated to simultaneously produce consecutively arranged series of independent sample plugs in each of the plurality of sample channels, the computer program comprising a code segment ~~(81)~~ for flushing of a flush fluid control means ~~(32)~~ with flush fluid such that the consecutively arranged series of independent sample fluid plugs ~~(51)~~ are formed in ~~a multichannel array (31)~~ each of the plurality of sample channels of said device ~~(3)~~, said sample plugs being separated by said flush fluid.

24. (Canceled)